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AUTHOR Fasko, Daniel, Jr.; Grubb, Deborah J.

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ABSTRACT

This study evaluated the self-assessment measures in the Learner-Centered Battery (LCB), which was developed from the theory and research base represented in the Learner Centered Psychological Principles (LCP) (American Psychological Association & McRel, 1993). The purposes of this study were: (1) to evaluate the use of the LCB self-assessment to measure experienced teachers' beliefs about and use of learner-centered practices; (2) to determine the relationship of student responses on the LCB to student motivation and achievement, and their teachers' teaching practices; and (3) to evaluate the usefulness of the LCB for teacher education reform. Participants were 6th to 12th grade teachers (N=36) and students (N=655) from a rural Kentucky school system. The teachers rated themselves using the LCB Teacher Survey and had one of their classes rate them using the LCB Student Survey. Major findings were that: effective teachers demonstrated more implementation of learner-centered domains of practice than did less effective teachers; student perceptions of teachers' implementation of learner-centered practices and student self-efficacy ratings predicted student achievement; and the LCB reliably differentiated effective from less effective teachers. With regard to teacher education reform, two dimensions need to be taken into account: the substantive content of the principles and preservice teachers' actual learning processes. A table on the learner-centered principles is attached. (Contains 25 references). (SM)

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Implications of the Learner-Centered Battery for New Teacher Standards and Teacher Education Reform in Kentucky

Daniel Fasko, Jr. and Deborah J. Grubb
Morehead State University

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Abstract

The Learner-Centered Battery, developed from the theory and research base represented in the Learner-Centered Psychological Principles (APA & McREL, 1993), assesses (a) teachers' beliefs about learners, learning, and teaching, (b) teachers' perceptions of their classroom practices in domains of practice identified in the *Principles*, and (c) students' perceptions of teacher classroom practices in these same domains. Major findings were that: (1) effective teachers demonstrate more implementation of learner-centered domains of practice than less effective teachers; (2) student perceptions of teacher's implementation of learner-centered practices and student self-efficacy ratings predicted student achievement; and (2) the Learner-Centered Battery can be used to predict high quality teaching (i.e., reliably differentiate effective from less effective teachers).

Implications of the Learner-Centered Battery for New Teacher Standards and Education Reform in Kentucky

A central focus of the national reform agenda as well as state and local initiatives is providing classroom and school practices that are consistent with the current research and theory base on learners and learning. It has been increasingly recognized by educators and policymakers that comprehensive, systemic, collaborative, and *learner-centered* practices are necessary to bring about effective learning and achievement for *all* students (e.g., Darling-Hammond & Snyder, 1992; Lambert & McCombs, in press; McCombs, 1991, 1992, 1993; McCombs & Whisler, 1997; McCombs, Lambert, Farley, & Spielberger, 1992). This need is particularly acute for students at risk of school failure in both urban and rural settings.

To help teachers make desired changes in practice, professional development tools such as validated self-assessment measures are a promising approach (McCombs, 1994, in press; McCombs & Whisler, 1997). These tools are consistent with current national professional development principles (NSDC/NASSP, 1995) and can assist teachers in becoming more aware of and reflective about (a) their basic beliefs and assumptions about learners, learning, and teaching; (b) the relationship of these beliefs to their school and classroom practices from their own and their students' perspectives; and (c) the impact of these practices on student motivation, learning, and academic achievement. Ultimately, the tools can become the basis for personalized professional development planning by teachers (McCombs, 1995).

The research reported here builds on the work begun by McCombs and her

colleagues at the Mid-continent Regional Educational Laboratory (McREL) during the 1990-95 time period (McCombs, 1994, 1995, 1996). This work resulted in a Learner-Centered Battery, developed from the theory and research base represented in the *Learner-Centered Psychological Principles* (APA & McREL, 1993), that assesses (a) teachers' beliefs about learners, learning, and teaching, (b) teachers' perceptions of their classroom practices in domains of practice identified in the *Principles*, and (c) students' perceptions of teacher classroom practices in these same domains. This battery was validated in two phases (Descriptive and Predictive Validations) with representative samples of teachers and students in each phase (McCombs, 1994, 1995; McCombs, Ridley, & Stiller, 1995). The study reported here was part of a collaborative project with McREL during the second validation phase of the Learner-Centered Battery (LCB).

The *Learner-Centered Psychological Principles* (LCP) were developed through the efforts of an American Psychological Association Presidential Task Force on Psychology in Education and McREL in order to contribute to current educational reform endeavors regarding the learner and the learning process and thus to help the nation meet its educational goals (McCombs, 1992). The LCPs are based on research suggesting that learning is an internal process and is attained in a "rich" learning environment (Alexander & Murphy, 1994; in press; Crowell & Alford, 1995; Lambert & McCombs, in press; McCombs, 1994; McCombs & Whisler, in press). Crowell and Alford (1995) state that this approach engages the "whole" learner and that the classroom and school system focus on the learners' needs. (For further details on the validation and research base for APA's LCPs see Lambert & McCombs, in press; McCombs, 1994 in press; Alexander & Murphy, 1994, in press.)

These principles are applicable to effective schooling practices, positive mental health of students, and more effective functioning of teachers, and education reform. The LCPs emphasize that "learner centeredness" involves taking the learner's frame of reference into account when developing educational experiences (McCombs, 1994). In addition, McCombs (1997) states that "[n]one of the practices that follow from the Principles need take a particular form or look a particular way, but they must be consistent with the knowledge base represented by the principles..." (pp. 4-5).

McCombs (1995) suggests that the 12 LCPs lead to a new model for teacher practice to facilitate learning and motivation. This Learner-Centered Model (LCM) "provides a perspective which is based on an understanding of the nature of the individual learner ... and what we know about learning" (McCombs, 1995, p.10). Woolfolk (1995) interprets the LCPs as an attempt to make sure that students are active learners using a variety of learning strategies in solving problems and discovering important ideas. (See Table 1 for an outline of the LCPs.) Interestingly, McCombs (1993) suggests that there is a reciprocal relationship between students and teachers (i.e., students and teachers as co-learners sharing power and control) in a learner-centered classroom, especially when promoting motivation and higher-order thinking. Also, McCombs (1997) states that "[n] one principle can be treated in isolation if maximum learning is to occur" (p. 2).

Insert Table 1 about here

These principles fit well with the current Kentucky Education Reform Act of 1990 (KERA) which emphasizes that all students can learn, and at relatively high levels (Miller, Noland & Schaaf, 1990). KERA is a multifaceted reform with provisions for changes in curricula, teaching practices, assessment, and school management. These changes relate to the psychological literature on learning and cognitive development (Phillips, Boysen, & Schuster, 1997). The goal of this reform is to create an environment for improved student achievement resulting in greater school success. However, many changes are being implemented in Kentucky with teachers who do not have a firm foundation in learning theory and research within the field of educational psychology. Further, psychologists have been given a very minor role in Kentucky's reform efforts, eliminating the school employees who have the most expertise in educational psychology and learning theory.

A model has been developed at McREL that focuses on what should be included in educational reform (McCombs, 1997). According to McCombs (1997), this model can be the foundation for reforms in educational standards, instruction, curriculum, assessment, etc. (See Figure I.) Additionally, McCombs (1993) notes that "even though there is evidence that learner-centered approaches can promote maximum student involvement and learning outcomes, not all educators and policymakers are convinced that this is the direction in which to go to improve educational outcomes" (p.289). This is an unfortunate scenario because psychologists (e.g., educational and school psychologists) have the expertise to contribute to school-based decisions-making (Adelman & Taylor, 1993), and assessment procedures, which are major components of KERA.

Insert Figure 1 about here

As part of the KERA initiative, the Kentucky Education Professional Standards Board (KEPSB) established Standards for Preparation and Certification for both new and experienced teachers. The standards describe what first year and experienced teachers should know and be able to do to promote effective student learning. Each of the standards (8 for new teachers, 9 for experienced teachers) reflect instructional processes which demonstrate an understanding of the academic, social, emotional, and physical needs of each learner (KEPSB, 1994a & 1994b.). Many of these parallel the LCPs.

Insert Tables 2 and 3 about here

In McREL's work with the LCB, the focus is on identifying profiles of effective beliefs, practices, and discrepancies between teacher and student perspectives -- in terms of their enhancement of student motivation and achievement -- as a tool to further assist teachers to reflect on and change their practices as well as identify personalized staff development needs (McCombs, 1995; McCombs & Stiller, 1995). This work is predicated on the belief that a focus on learner perspectives can better aid teachers in identifying individual student needs and changes in their practice that can directly meet these needs.

Development and Validation of the Learner-Centered Battery

Learner-centered education is a multi-dimensional construct, presented in the *Learner Centered Psychological Principles* as an organized set of principles (McCombs & Stiller, 1995). Guided by professional consensus and the research base, the 12 principals are organized into cognitive/metacognitive, affective/motivational, developmental, personal and social, and individual difference factors (see Table 1). In the overall LCB, four measures were created: (a) Teacher Beliefs and Assumptions (TBA); (b) Teacher Classroom Practices (TCP); (c) Student Assessment of Classroom Practices (SACP); and (d) the School Practices Survey (SPS). The measures examine classroom and school practices from the perspectives of teacher attitudes, teacher self-reported behavior, student perception of their teacher's behaviors, and administrator and teacher perceptions of school practices, leadership, and climate, respectively.

Purposes of Study

The purposes of this study were to (1) evaluate the LCP self-assessment measures in the Learner-Centered Battery (LCB) with experienced teachers to measure their beliefs and use of learner-centered practices, (2) determine the relationship of student responses on the LCB to student motivation, achievement, and teaching practices, and (3) evaluate the usefulness of the LCB for teacher education reform. If found to be a useful measure of a "learner-centered" approach, these instruments could be incorporated in pre- and inservice professional development training for teachers as state departments of education and school districts initiate educational reform.

Method

Participants

In this study, 36 sixth through twelfth grade teachers, selected based on criteria listed below, and 655 of their students from a rural eastern Kentucky school system participated in the study. Effective and less effective teachers were selected according to the following procedure. An administrative team which included a principal, supervisor, and superintendent met and compiled two lists of teachers from a small rural eastern Kentucky middle and high school. The teachers were designated as meeting or not meeting all of the following criteria: (1) the teacher encourages the students to use higher order thinking skills, (2) the course content is meaningful in today's world, (3) the learning activities are integrated into multiple content areas, (4) the teacher develops learning opportunities to encourage intrinsic motivation in students, (5) the teacher is positive in student-teacher relationships and cares about student success, (6) the teacher encourages tolerance for cultural diversity, and (7) the teacher allows for and addresses individual differences in learning. In total, a group of 26 high school and 12 middle school teachers was identified. Of that group, 17 high school and 6 middle school teachers were suggested by the administrative team as closely meeting the criteria for effectiveness; (i.e., considered to be effective teachers). Nine high school and 6 middle school teachers were suggested as not meeting the outlined criteria, and were generally considered to be less effective teachers. All teachers were asked to participate in a study rating themselves (LCB Teacher Survey) and having one of their classes (LCB Student Survey) rate them on the learner-centered principles. All teachers agreed to participate in the study.

Each participating teacher selected one class of students to complete the Student Survey. In all, 655 students completed the survey with 359 reporting themselves to be female, 264 male, and 33 not reporting. Students reported themselves as enrolled in sixth or seventh grade (176), eighth grade (70), ninth grade (98), tenth or eleventh grade (187), or twelfth grade (113). Twelve students did not report a grade level. The data on race indicated that 82.2% reported themselves as white, 2.1% Asian, 2.1% Black, 2.4% Hispanic and 9.3% as other.

Materials

The Learner-Centered Battery (LCB). The Teacher and Student Surveys as described previously were used with participating teachers.

Student Achievement Ratings. Each participating teacher was asked to keep a master list of students matched to identification numbers so that following completion of the surveys, a score for classroom achievement from 0-100 could be recorded in a designated spot on each students' answer sheet. Teachers were asked to record the most recent report card grade for each student filling out a survey on that student's survey form. After all surveys were returned, report card letter grades were converted to numerical scores.

Design and Procedure

Teachers were asked to administer the student survey to their homeroom class or a class of their choice.

Results

Three sets of analyses were conducted in this study: an analysis of teacher questionnaire data to determine which subscales best distinguish effective teachers from less effective teachers, an analysis of student questionnaire data to determine which subscales best distinguish effective teachers from less effective teachers, and a third set of exploratory analyses to determine the best predictors of student achievement for students in effective teacher classrooms and for students in less effective teacher classrooms. A MANOVA model with two levels (effective versus less effective teachers) was used to analyze teacher subscales and student subscales, and two separate linear regression models were used to predict achievement of students in classes with effective teachers and students in classes with less effective teachers.

Preliminary Analyses

The LCB, discussed earlier, consists of two versions: one for students and one for teachers. In a typical administration, a teacher takes the teacher version and all of the teacher's students take the student version. Results are then combined so that teacher data, student data, and differences between teacher practices data and student perception data on four of the subscales can be calculated.

The teacher version of the LCB consists of 111 items. The 111 items were then combined to form 11 subscales. The student version was administered to 655 sixth through twelfth grade students in the 36 classrooms of the teachers just described. The 72 items administered to the students were then used to calculate 12 subscales. Reliability coefficients for these teacher subscales ranged from .43 to .80; for the student subscales, reliability

coefficients ranged from .71 to .92, indicating a moderate to high internal consistency for these measures. National validation samples of teachers who have completed these paper-and -pencil measures are also moderately to highly reliable for the student measures (with coefficients ranging from .71 to .91, and .44 to .71 for the teacher measures, which ranges from low to moderate reliability.

After the teacher subscales and the student subscales were created, files were combined to create four difference score subscales for associated teacher and student measures. Specifically, differences between students and teachers with regard to positive interpersonal relationships and climate, honoring student voice, encouragement of higher order thinking and self regulation, and adaptation to individual developmental differences were calculated by subtracting teacher subscale scores from corresponding student subscale scores. If a positive difference score resulted, it indicted that the student rated teachers higher on the dimension than did the teacher. Conversely, a negative difference score indicated that the teacher rater himself or herself higher on a dimension than did the students. In this manner, four difference scores were then calculated for each of the 655 students in the sample. Achievement scores (0-100) were also available for each student based on teacher evaluations of students' classroom performance.

Independent evaluations of teacher quality were used to create two categories of teachers based upon multiple criteria described earlier: effective teachers and less effective teachers. In total, a group of 26 high school and 12 middle school teachers was identified. Of that group, 17 high school and six middle school teachers were suggested by the administrative team as closely meeting the criteria for effectiveness.

A Multivariate Analysis of Variance (MANOVA) was conducted upon the multiple indicators collected from teachers in this study to determine which differentiated effective teachers from less effective ones. The overall test was not significant ($F(19, 15)=1.415$; $p< .250$). Therefore, no further analyses were conducted upon teacher subscale data.

A Multivariate Analysis of Variance (MANOVA) was conducted upon the multiple indicators collected from students in this study to determine which differentiated effective teachers from less effective ones. The overall test was significant, ($F(15, 578) = 12.870$; $p < .001$), indicating an overall effect for the effective versus less effective teachers classification with regard to the battery. Follow-up univariate analyses then revealed several significant results, which are displayed in Table 4.

Insert Table 4 about here

Table 4 reveals that students of effective teachers rate the honoring of student voice, provision of challenges and encouragement of perspective taking higher ($M=3.175$) than do students of less effective teachers ($M=3.055$). Students of effective teachers score lower on effort avoidance strategies ($M=1.908$) than did students of less effective teachers ($M=2.125$). Students of effective teachers scored higher on the state epistemic curiosity measure ($M=2.960$) than did students of less effective teachers ($M=2.817$). Students of effective teachers scored lower on the work-avoidant goals measure ($M=2.105$) than did students of less effective teachers ($M=2.371$).

With regard to the discrepancy between students and teachers on the parallel measures

of honoring student voice, provision of challenges and encouragement of perspective taking, students of effective teachers had smaller discrepancies (M= -.146) than did students of less effective teachers (M=-.393). Students of effective teachers also had smaller discrepancies (M=.071) with regard to encouragement of higher order thinking and self regulation than did students of less effective teachers (M=-.290). Finally, students of effective teachers rated teachers' adaptation to individual developmental differences even higher (M=.063) than did the teachers themselves, in contrast to students of less effective teachers, who rated teachers lower (M=-.314).

As mentioned before, student achievement was collected from classroom teachers in this study. Student achievement data were then used in exploratory analyses to learn about the dynamics of classrooms with effective teachers and classrooms with less effective teachers with regard to the LCB. Separate linear regression analyses were conducted to predict student achievement for students in classes with effective teachers and to predict student achievement in classes with less effective teachers using student subscale data. Results of these analyses are displayed in Table 5 for students with effective teachers and in Table 4 for students with less effective teachers.

Insert Tables 5 and 6 about here

Table 5 demonstrates that self efficacy ratings, higher order thinking, the discrepancy between teachers and students with regard to higher order thinking and the discrepancy between teachers and students with regard to adaptation to individual developmental

differences are significant predictors of student achievement in classrooms with effective teachers. Table 6 shows that self efficacy ratings, honoring student voice, discrepancies between teachers and students with regard to student voice and similar discrepancies with regard to higher order thinking skills are significant predictors of student achievement in classrooms with less effective teachers. In other words, the results suggest that achievement in classrooms with effective teachers is more closely associated with the encouragement of higher order thinking and self regulation, while achievement in classrooms with less effective teachers is more closely related to honoring student voice, providing challenges, and encouraging perspective taking.

Results Summary

This study demonstrated that several subscales, when administered to adolescents, can discriminate effective teachers from less effective ones, as measured by criteria external to the students themselves. In sum, predictors of teacher effectiveness are student perceptions about performance oriented goals, effort avoidance strategies, work avoidant goals, and to a lesser extent, state epistemic curiosity. Discrepancies between student perceptions and teacher behaviors with regard to student voice, higher order thinking skills and self regulation and adaptation to individual developmental differences also predict teacher effectiveness. Finally, exploratory analyses suggest that student achievement in classrooms with more effective teachers is related to the encouragement of higher order thinking and self regulation. In contrast, student achievement in classrooms with less effective teachers is more uniquely related to honoring student voice, providing challenge and the encouragement of perspective taking.

Discussion

The data provided by this study indicate that: (1) effective teachers demonstrate the three learner-centered practices of (a) creates positive interpersonal relationships/climate (Factor 1), (b) honors student voice, provides challenge, and encourages perspective taking (Factor 2), and (c) encourages higher order thinking and self-regulation (Factor 3); (2) students' self-efficacy ratings are significant predictors of academic performance; and (3) the quality of teachers (i.e., effective or less effective according to the seven criteria outlined earlier) can be predicted with the LCB.

These results compare favorably with results of McREL validation studies completed with the Learner Centered Battery (McCombs, 1996; McCombs & Stiller, 1995) and point to the usefulness of the Battery as a self-assessment and reflection tool for teachers to identify (a) students who are not perceiving positive classroom practices in the four domains assessed by the practices measure and (b) potential changes in practice that can help reach all students. The value of this strategy is particularly highlighted given the strong relationships found between student perceptions of classroom practices, motivation, and classroom achievement. That is, students who can be identified as perceiving teacher practices in negative ways are those students who have both low motivation and low achievement, which may be expected in many classrooms. These are the students most in need of teacher practices that address their needs. The Battery can provide a useful tool for teachers to identify those areas where changes in practice will have the highest payoff.

Implications for Inservice and Preservice Professional Development

Because students' self-efficacy ratings appear to be a significant predictor of academic achievement, teachers need to consider this issue when planning their instruction and evaluation. That is, by increasing students' self-concept about themselves as learners, it is speculated that their academic performance would increase. It would appear then, that this issue could also be addressed in pre-service courses and professional development programs. Thus, the LCB can be used as a teacher self assessment, as a way for teachers to determine the match between their beliefs and their students' beliefs, and as a classroom observation tool.

In addition, research suggests that when the LCPs are included in a teacher education course it influences pre-service teacher beliefs. That is, Meece (1997) found that when a teacher education course is designed to connect the theories underlying to practice, it stimulated changes in these students educational beliefs in the direction of learner-centeredness.

Implications for Teacher Education Reform

For the reform of teacher education to be consistent with the knowledge base summarized in the *Principles*, it must begin with opportunities for teachers to become more aware of and willing to reflect on the degree to which their classroom and program practices are compatible with the *Principles*. Focusing on the personal aspects of teacher change, for example, it is important to understand that for teachers to provide the instructional climate that supports basic learning, motivation, and developmental needs for *all* learners, they must (a) understand the knowledge base about learner needs,

motivation, and learning; (b) be skilled in the strategies and practices that best support these needs; (c) be in environments that support them as individuals while informing them about their own needs and perceptions in these areas; and (d) develop an understanding of cultural and other differences that can help them move toward more equitable practices.

In considering the application of the *Principles* to teacher education and those preparing to teach, therefore, two dimensions need to be taken into account. One dimension is the *substantive content* of the principles. That is, those preparing to teach need to understand the essence of these principles as they apply to the students in their classrooms. The second dimension refers to the actual *learning processes* that pre-service teachers themselves go through. If we expect those preparing to teach to follow these learner-centered principles, they must experience these principles as learners themselves. This may entail rethinking the way teacher education programs and classes are structured. Thus, pre-service classes and inservice programs should include topics such as motivation, learning, and psychological functioning in an active way (McCombs, 1997).

This is precisely the intention of Kentucky's establishment of the New Teacher Standards for Preparation and Certification developed by the Educational Professional Standards Board. The Teacher Standards will be assessed using a combination of the NTE and a performance based system, establishing accountability for both the teacher candidate and the teacher preparation program. The performance-based system will include portfolios and an on-demand task portraying a real-life teaching problem in a specific content area. These on-demand tasks relate directly to the teacher standards and

learner expectations established through KERA. Because assessment guides what is taught and how it is taught, the stage is set in Kentucky for the LCPs to become a foundation for effective teaching practice. The LCPs provide a framework for understanding many of the goals of Kentucky's reform: all students can learn at relatively high levels, instruction and assessment should be based on higher order thinking skills and authentic demonstrations of learning, learning at the early elementary level should be in multi-age, multi-ability groups where contextual learning opportunities are developmentally appropriate, and the teacher's role is to guide students to become independent life-long learners who can problem solve and integrate knowledge.

Recommendations for Research

Several of the LCP variables are predictive of the quality of teachers. Specifically, those practices perceived by students as honoring their voice, providing challenge, and encouraging perspective taking were related positively to effective versus less effective teachers. In addition, student motivation as defined by students' state epistemic curiosity and task mastery goals are predictive of effective teachers. On the other hand, negative motivation as defined by students' effort avoidance strategies, performance oriented goals, and work avoidant goals are predictive of less effective teachers. Additional research is needed to further explicate relationships between students' perceptions of their teacher's classroom practices, teacher characteristics and beliefs, and student motivation and achievement. Work currently underway at McREL to create profiles of characteristics that define effective and less effective teachers -- as these might be different for teachers in different subject areas, with different age students, with students of different ethnic groups --

to give teachers a tool for identifying those areas where changes in practice will have the highest payoff in terms of learning, motivation, and achievement (McCombs, Meece, & Lauer, in preparation).

Furthermore, necessary knowledge and skills for practicing teachers that need to be part of an experience-based approach to teacher preparation will then need to be identified from staff development profiles. These practical areas then need to be supplemented by further research on effective versus ineffective teachers in promoting learning and achievement for diverse students and a wide range of individual differences (e.g., limited English proficient, migrant, culturally diverse).

Finally, current staff development models are emphasizing teachers taking increased responsibility for their own professional development and are advocating self-assessment strategies. Tools do not currently exist, however, for teachers to engage in a continual, on-going, respectful, non-threatening, supportive, and self-directed process of assessing and changing their practices to increase their instructional effectiveness with individual students. Furthermore, tools do not currently exist for aligning this type of self-assessment with an opportunity to consider students' (or other constituencies') perspectives as a tool for change and for changing thinking, and hence the need for on-going self-assessment and revision of practices. The work reported here is an important step in addressing these professional development needs.

Kentucky's reform movement is having an impact on the professional development experience of practicing teachers. Kentucky's Educational Professional Standards Board has established competencies for experienced teachers. These competencies will become

the basis of a re-certification plan that will be set up in five year professional development blocks.

In conclusion, although this research is exploratory in nature, there are several components of the LCPs as they are operationalized in the Learner-Centered Battery that appear related to students' classroom performance and motivation as well as to teacher quality. That is, at least some of the subscales in the Student Survey are good predictors of teacher quality as it has been defined in this study. These results need to be confirmed in other studies, which are planned as part of McREL's collaborative research program with the Battery. The results of the study reported here provide an encouraging foundation for demonstrating the efficacy of the Learner-Centered Model in understanding and predicting student motivation and achievement, and in assisting teachers in their professional development.

Authors' Notes

Sections of this paper describing the development and validation of the Learner-Centered Battery were taken from McCombs and Stiller (1995). Sections of this paper were also adapted from Fasko, Grubb, Jesse and McCombs (in press), Use of the Learner-Centered Principles Test Battery: Implications for inservice and preservice professional development. The Professional Educator.

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Table 1

Learner-Centered Principles

METACOGNITIVE AND COGNITIVE FACTORS		
Principle 1	The nature of the learning process	Learning is a natural process of pursuing personally meaningful goals. It is active, volitional, and internally motivated; it is a process of discovering and constructing meaning from information and experience, filtered through the learner's unique perception, thoughts, and feelings.
Principle 2	Goals of the learning process	The learner seeks to create meaningful, coherent representations of knowledge regardless of the quantity and quality of the data available.
Principle 3	Construction of knowledge	The learner links new information with existing and future-oriented knowledge in uniquely meaningful ways.
AFFECTIVE FACTORS		
Principle 4	Higher-order thinking	Higher-order strategies for "thinking about thinking"- for overseeing and monitoring mental operations- facilitate creative and critical thinking and the development of expertise.
Principle 5	Motivational influences on learning	The depth and breadth of information processed, and what and how much is learned and remembered, are influenced by (a) self-awareness and beliefs about personal control, competence, and ability; (b) clarity and saliency of personal values, interests, and goals; (c) personal expectations for success and failure; (d) affect, emotion, and general states of mind; and (e) the resulting motivation to learn.
Principle 6	Intrinsic motivation to learn	Individuals are naturally curious and enjoy learning, but intense negative cognitions and emotions thwart this enthusiasm.

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Principle 7	Characteristics of motivation-enhancing learning tasks	Curiosity, creativity, and higher-order thinking are stimulated by relevant, authentic learning tasks of optimal difficulty and novelty for each student.
DEVELOPMENTAL FACTORS		
Principle 8	Developmental constraints and opportunities	Individuals progress through stages of physical, intellectual, emotional, and social development are a function of unique genetic and environmental factors.
PERSONAL AND SOCIAL FACTORS		
Principle 9	Social and cultural diversity	Learning is facilitated by social interactions and communication with others in flexible, diverse, and adaptive instructional settings.
Principle 10	Social acceptance, self-esteem, and learning	Learning and self-esteem are heightened when individuals are in respected and caring relationships with others who see their potential, appreciate their unique talents, and accept them as individuals.
INDIVIDUAL DIFFERENCES		
Principle 11	Individual differences in learning	Learners have different capabilities and preferences for learning modes and strategies.
Principle 12	Cognitive filters	Personal beliefs, thoughts, and understandings resulting from prior learning and interpretations become the individual's basis for constructing reality and interpreting life experiences.

Note. Adapted from A. E. Woolfolk (1995) Educational psychology (6th ed.). Needham Heights, MA: Allyn & Bacon; and B. L. McCombs (1995) Putting the learner and learning in learner-centered classrooms: The learner-centered model as a framework. Michigan Association for Supervision and Curriculum Development, 17 (1), 7-12.

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Table 4

Univariate F-Tests of Students Subscales by Teacher Quality

Variable	SS	MS	F	p	ETA Square
POSREL [b]	.28741	.28741	.46830	.494	.00079
STUVOIC [b]	2.05582	2.05582	4.84823	.028	.00812
HOT [b]	.01189	.01189	.02225	.881	.00004
AIDD [b]	.82149	.82149	1.41856	.234	.00239
SER [b]	1.05492	1.05492	2.37999	.123	.00400
EAS [b]	6.63887	6.63887	15.49932	.000	.02551
POG [b]	11.77582	11.77582	22.56285	.000	.03671
SEC [b]	2.90601	2.90601	7.31012	.007	.01220
ALS [b]	.15254	.15254	.35760	.550	.00060
TMG [b]	.94999	.94999	1.79965	.180	.00303
WAG [b]	9.98462	9.98462	19.45943	.000	.03182
DPOSREL [c]	.30657	.30657	.50612	.477	.00085
DSTUVOIC [c]	8.56896	8.56896	18.16719	.000	.02977
DHOTS [c]	6.72440	6.72440	10.96023	.001	.01818
DAIDD [c]	19.98430	19.98430	31.56309	.000	.05062

Note: a. N=328; b. POSREL =Positive relations, STUVIOC=Honors student voice, HOT=Higher order thinking, AIDD=Adapts individual differences, SER=Self-efficacy rating, ALS= Active learning strategies, EAS= Effort avoidance strategies, POG=Performance oriented goals, SEC= State epistemic curiosity, TMG= Task mastery goals, WAG= work avoidance goals. C. Difference scores between teachers and students.

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Table 5

Prediction of Student Achievement In Classrooms with Effective Teachers

Variable	B	SE B	Beta	T	p
POSREL	-2.451954	2.554655	-.188033	-.960	.3379
STUVOIC	1.289369	3.074010	.078614	.419	.6752
HOT	6.168559	2.561001	.422167	2.409	.0166
AIDD	-2.029712	1.757861	-.146080	-1.155	.2491
SER	4.805506	1.110442	.317545	4.328	.0000
EAS	-1.848875	1.344770	-.105698	-1.375	.1702
POG	-.005487	.949151	-3.613E-04	-.006	.9954
SEC	-.331165	1.491918	-.020857	-.222	.8245
ALS	1.537660	1.353769	.095389	1.136	.2569
TMG	-.875248	1.486606	-.059658	-.589	.5565
WAG	1.493640	1.184912	.095382	1.261	.2084
DPOSREL	3.255277	2.450918	.233877	1.328	.1851
DSTUVOIC	.961481	2.674198	.058391	.360	.7194
DHOTS	-4.818252	2.021254	-.350394	-2.384	.0177
DAIDD	-2.978860	1.568075	-.218689	-1.900	.0584
(Constant)	59.127812	7.345325		8.050	.0000

Note: $R^2 = .25$

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Table 6

Prediction of Student Achievement In Classrooms with Less Effective Teachers

Variable	B	SE B	Beta	T	p
POSREL	2.113781	4.725108	.130996	.447	.6552
STUVOIC	12.306225	5.841187	.675328	2.107	.0366
HOT	-7.227886	4.945979	-.447634	-1.461	.1458
AIDD	-4.962579	3.148830	-.303715	-1.576	.1169
SER	8.801974	1.723953	.451795	5.106	.0000
EAS	1.290767	2.196012	.074179	.588	.5575
POG	-2.256891	1.607211	-.133743	-1.404	.1621
SEC	1.271596	2.239907	.058699	.568	.5710
ALS	-2.390607	2.288285	-.123988	-1.045	.2976
TMG	-1.325647	2.165422	-.078234	-.612	.5412
WAG	-1.533649	1.849415	-.093607	-.829	.4081
DPOSREL	-3.501280	4.417206	-.242157	-.793	.4291
DSTUVOIC	-12.756315	5.442519	-.770643	-2.344	.0203
DHOTS	11.450652	4.703954	.789431	2.434	.0160
DAIDD	4.311587	3.066907	.302185	1.406	.1616
(Constant)	53.041329	10.483362		5.060	.0000

Note: $R^2 = .25$

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